INSECT CONTROL [illegible]
Ochoco National Forest - D-6
Spring of 1912.

July 6, 1912.

The insect control work carried on in the Badger and Beetle Creek watersheds was managed and handled entirely from one camp located in the se 1/4,se 1/4, sec. 16, T 13 S, R 22 E, W.M.

Camp was established as early in the spring as possible and actual control work was begun May 5, ending June 26, 1912. An area of 5,492 acres was thoroughly cruised and 1,502 yellow pine trees and 1,960 lodgepole pine trees containing broods of the Dendroctonus Monticolae and Dendroctonus Brevicomis were treated. A portion of this t/ treated area was on Beetle Creek south of the main divide and here the insects were very active, having been blown through a low pass from the Badger Creek side. It is believed that the complete treating of the Beetle Creek area will have a large influence in checking the work of the Mountain and Western Yellow Pine beetles south of the main divide. As many as 250 Mountain Pine Beetles have been found per square foot on the surface of trees between the bark and the wood. However, the average number per square foot is 50. The average yellow pine tree treated contained approximately 10,950 beetles, while the average lodgepole pine treated contained approximately 4,900.

The appearance of the insect infestation upon arrival at Badger Creek seemed to be about the same as it was in the fall of 1911 when the examination was made, i.e., the greater number of the lodgepole along the small streams and around the meadows having been killed during the past three or four years, and also single trees and small clumps of yellow pine located on ridges. The infested trees seemed to be very scarce at first as only scattering sorrel tops could be noticed. It was not long, however, after the warm weather began that the infested trees showed up rapidly and the yellow pine ridges on all sides were beginning to change color. The first signs of the trees being infested was the foliage having a sickly appearance, then the lighter color changing to a yellow and from that to a sorrel color. The appearence of pitch tubes on the surface of the bark was also evidence that a tree was infested, and around the butts of these trees the pin-head borers were usually at work in the sap scattering a fine white saw dust over the outer bark. In many trees the pitch resistance is so great as to drown out the insects attacking it, if not too numerous, and cases where this happens the pitch tubes are unusually large.

After the work of treating certain yellow pine areas along Badger Creek was completely finished, a second cruise showed that a great number of individual trees were beginning to show signs of infestation. Those trees were cut, and in nearly every case the bugs had heavily attacked the tree at the top and worked down sometimes half way or more to the ground. The portions not infested were found to be very healthy and free from attacks by insects and the bark clinging so tight as to make it too expensive to be removed. The green portions of trees not barked become heavily infested soon after cutting, and it is recommended that the Forest rangers on the Ochoco establish a camp on Badger Creek this fall and finish removing the bark from these trees, at which time the bark will slip off easily.

number of insect infested trees in sec. 18 and 19, T15 S, R 22 E, W.M., near the wagon road, were marked before camp was broken up for a later examination by posting a heavy paste board notice on them which contains written descriptions, giving the appearance of the trees at the time of posting.

Methods of controlling the Dendroctonus Monticolae and Dendroctonus brevicomis were as follows;

The cruising was done by E. R. Hankin and myself who located and marked the infested trees, determining which species of insects were killing the timber, branding those trees infested by the Mountain Pine beetle with a blaze and U. S. on three sides, and those killed by the Western Pine Beetle with a cross on one side. Besides doing the cruising we found it possible to spend at least one-half of our time working with the treating crews.

The cutting crews generally consisted of four men, who did the treating of the infested trees. One man in each crew was given a book in which to record all of the tree measurements. He received no higher wages for doing the recording, and I believe that this system is better than having a crew foreman since it eliminates the possibility of the men believing they need to be watched, or that some men are receiving higher wages for doing no more work.

Infested yellow pine trees containing the living broods of Mountain Pine Beetle were felled, trimmed, and the bark removed from the infested portions, exposing the insects to heat and cold causing the most of them to die within two to four hours, while those trees attacked by the Western Pine Beetle it was necessary to burn the bark since the eggs hatch and the larvae develop entirely in the bark. The limbs and tops of yellow pine were piled in compact piles and burned. The smaller limbs and needles were satisfactorily picked up with 4-tined pitch forks. The trial of peeling lodgepole portions proved to be slow tedious work, and, therefore, all of this species infested were entirely burned. Stumps were cut 18 inches ,or less.

## Tree Measurements.

(1)

| Species | No. | aver. D.B.H. | aver. Infest Length | aver. Infest Height | Aver. Surface Treated. per sq.ft. per tree |
|---|---|---|---|---|---|
| Yellow Pine | 1502 | 19.07 | 76.55 | 82.14 | 219 sq. ft. |
| Lodgepole Pine | 1960 | 10.42 | 54.41 | 65.64 | 98 sq. ft. |
| Total trees | 3462 | | | | |

(2)

| Species | D.B.H. Max. | D.B.H. Min. | Infested Length Max. | Infested Length Min. | Heights Max. | Heights Min. | Ft. Bm. |
|---|---|---|---|---|---|---|---|
| Yellow Pine | 65" | 4" | 150' | 7½' | 150' | 18' | 540,720 |
| Lodgepole Pine | 54" | 3" | 80' | 5' | 90' | 30' | 147,000 |
| Total B.F. | | | | | | | 687,720 |

## Average Miles Traveled Per Day.

By Cruisers, 5

treatment crews 2

## Locating, Marking and Treating of Trees.

| | |
|---|---|
| Total number of men employed | 32 |
| Days spent on project | 56 |
| Total number days on project | 845 |
| Average number of men per day | 15 |
| Average cost per man per day | 2.29 |
| Average cost per tree | .545 |
| Average cost per M Ft. Bm. treated | 2.49 |

## Board.

| | |
|---|---|
| Cost of board per man, per day | .959 |
| Cost of food per man, per day | .76 |

## Cost.

| | |
|---|---|
| Net cost per tree, including depreciation of equipment 15% | .7783 |
| Net cost per 1000 ft. bm. including depreciation of equipment 15% | 3.91 |

BADGER CREEK CAMP.

## Number Trees treated months of May and June, 1913.

| Township | Range | Section | Area | Yellow Pine | Lodgepole Pine |
|---|---|---|---|---|---|
| 15 | 21 | 11 | 165 | 525 | 281 |
| | | 13 | 130 | 68 | |
| | | 24 | 160 | 21 | 14 |
| | | 25 | 590 | 37 | 116 |
| | | 26 | 170 | | |
| | | 35 | 150 | 15 | |
| 13 | 22 | 7 | 562 | 3 | 74 |
| | | 9 | 155 | 5 | 370 |
| | | 17 | 480 | 221 | 160 |
| | | 18 | 640 | 435 | 695 |
| | | 19 | 500 | 104 | 118 |
| | | 20 | 170 | 368 | 193 |
| Total | | | | 1502 | 1960 |

## Recommendations.

The Badger Creek watershed was not entirely cleaned up this spring and practically nothing was done toward getting rid of the small infested area scattered over the Forest, and in order to make the experiment of more value additional work of this kind is recommended for the spring of 1913. It is estimated that, at least 2,500 trees are still to be treated in the Badger Creek watershed, and approximately the same number on scattering areas over the Forest, making a total of 5,000 trees. At approximately 80¢ per tree, it will cost

about $4,000 to exterminate the Pine Beetle from this Forest.

One camp should be established at Reyes Ranger Station and about 16 men put to work May 1, 1913. Two small outfits capable of being easily moved with six men each should also start to work at the same time on the small infested areas as shown on the map. Mr. E. H. Rankin, as well as a number of men who are already well trained for this work should be employed.

Summary of Control Work.

| | |
|---|---|
| Provisions | $ 640.97 |
| Camp and control equipment | 178.25 |
| Cooks | 168.00 |
| Cruising | 158.37 |
| Felling and treatment of trees | 1295.00 |
| Brush piling, burning, etc.(9.2 of total amount expended) | 168.00 |
| Moving and establishing camp | 143.66 |
| | $2846.25 |

Respectfully submitted,

Ephraim Barnes,

Deputy Supervisor.

Approved;

Homer Ross,

Forest Supervisor.

# REPORT ON INSECT CONTROL WORK, SPRING, 1912

EPHRIAM BARNES
OCHOCO N.F.
JULY 6, 1912